

# A SURVEY OF THE CEYLON FROGMOUTH (*BATRACHOSTOMUS MONILIGER*) HABITAT IN THE WESTERN GHATS OF INDIA<sup>1</sup>

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## INTRODUCTION

The Ceylon Frogmouth (*Batrachostomus moniliger* Blyth—family Podargidae), is one of the least known birds species of the evergreen forest biotope of the Western Ghats. Though the presence of this species was recorded by Sálím Ali (1953) during his bird survey of Kerala and by Vijayan (1979) during his general survey of wildlife in the Parambikulam wildlife sanctuary, the status of the bird in the south-west of India was uncertain. Hence, to ascertain its present status, a general survey was conducted during six months from April to September 1976. Survey was concentrated on the western slopes of the western ghats of India in the state of Kerala.

*Batrachostomus moniliger* (Blyth) is one of the two representatives of the Genus *Batrachostomus* (Gould) present in the Indian Sub-continent, and is restricted to the heavy rainfall tracts of Western Ghats. The other species, *Batrachostomus hodgsoni hodgsoni* is a resident of the subtropical evergreen forests of Northern India. Nothing much is known about the status, distribution, biology etc. of this bird. The last two reliable records published on the Ceylon Frogmouth are, by Sálím Ali from Thattakadu in the year 1953 (BIRDS OF KERALA)

and by V. S. Vijayan from Parambikulam sanctuary at a place called Varayatumudi in the year 1976 in Kerala. Both were accidental sightings or hearing its call when the bird suddenly flushed out from a thicket on the observer's approach. As stated by Sálím Ali in his report, this bird is very seldom seen even if it is close to the observer due to its immobility and cryptic plumage. Calls are very seldom heard and have not yet been authoritatively recorded. Food and feeding habits, breeding activities and other aspects of the bird are unknown.

### *Distribution:*

The distributional range of the Ceylon Frogmouth is believed to be from the wet evergreen forests of Karnataka state in the Western Ghats to the southern tip of the country in Tamilnadu and Sri Lanka. The elevational limit of this bird is believed to be 1200 m MSL. The survey of the bird was restricted to the heavy rainfall tracts of the Western Ghats, and was mainly limited to the Kerala forests—from the forests of Silent Valley in North Kerala through Parambikulam, Sholayar forests, Thattakadu, Periyar-Sabarimala forests etc.

### 1) **Silent Valley :**

The Silent Valley (11°5' 33" N, 76°27' 15"E) 8952 ha in extend lies in the Palghat district of Kerala state. The entire forest is on a plateau with undulating terrain, at an average elevation of 2000 m MSL. Silent Valley which contains India's last substantial stretch of tropical evergreen forest which is

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perhaps the only near-virgin forest in the whole of the Western Ghats. The floristic and faunistic contents of the forest are highly complex and have not been studied completely.

About half of the total area of Silent Valley forest is occupied by the wet evergreen type. This is mostly concentrated on either side of the main river of the area called Kunthipuzha. Towards the northern side of the reserve are vast areas of grass covered hills and in-between the hills occurs shola type of evergreen forest of the higher altitudes. Towards the eastern side of the reserve, wet evergreen forests merge with semi-evergreen and deciduous forests.

An extensive study of the flora of Silent Valley has not yet been done. The main floristic composition of the whole area is as follows: *Aglaia roxburghiana*, *Artocarpus hirsutus*, *Artocarpus integrifolia*, *Aphyllorchis prainii*, *Bischofia javanica*, *Calophyllum elatum*, *Cullenia excelsa*, *Dipterocarpus indicus*, *Hopea wightiana*, *Euphorbia longana*, *Knema attenuata*, *Lansium anamallayanum*, *Myristica beddomei*, *Mesua ferrea*, *Melia dubia*, *Lophopetalum wightianum*, *Pelaquim ellipticum*, *Saraca indica*, *Spondias acuminata*, *Trewia nudiflora*, *Baccaurea courtalensis*, *Chrysophyllum lanceolatum*, *Antidesma menasu*, *Drypetes macrophyllus*, *Croton argeratus*, *Cinnamomum iners*, *Hydnocarpus laurifolius*, *Scolopia crenate*, *Pterospermum rubiginosum*, *Diospyros bourdillonii*, *Apama siliquosa*, *Ervatamia heyneana*, *Trichilia connarioides*, *Polyalthia fragrans*, *Memecylon heyneanum*, *Sonerila versicolor*, *Sarcandra grandifolia*, *Angiopteris evecta*, *Cyathea gigantia*, *Pothomorpha subpeltata*, *Anaphyllum wightii*, *Pinanga dicksonii*, *Lasiathus jacksonus* etc;

Along the river bed large formations of *Ochlandra wightii* and *Schumanianthus virgatus* are met with.

The first Frogmouth in the Silent Valley

area was seen among the *Ochlandra wightii* clumps, not very far from the proposed dam site for the Silent Valley Hydroelectric project. Three others were located in the forest areas in-between Silent Valley and Mukkali. Another one was seen in the forest opposite to the Mukkali forest rest-house on the other side of the river. The three birds located between Silent Valley and Mukkali were among the solanum and strobilanthus undergrowth. The one sighted opposite to the rest-house was sitting on a dry tree branch about 15 feet above ground level. Even though this was visible from a long distance, I could not make it out until I approached the tree and saw the bird flying. In other cases also, I could make out the presence of the birds only after its flight due to the disturbance caused by my presence.

*Batrachostomus moniliger* seen in Silent Valley:

1) By the side of Kunthipuzha, near the dam-site	..	1
2) Between Silent Valley and Mukkali	..	3
3) In the forest opposite to Mukkali rest house	..	1
		—
	Total	.. 5
		—

2) **Parambikulam area :**

The Parambikulam Wildlife Sanctuary (10°25'N, 76°43'E) lies in the Palghat district of Kerala, at an altitude of 600 m. It has on its eastern border the Anamalai Wildlife Sanctuary of Tamil Nadu. The Nelliampathy reserve forest of Nenmara division of Kerala forest lies to the north-west of the sanctuary, and on the south and south-west lie the Vazachal and Sholayar ranges of Trichur district.

Unlike Silent Valley, Parambikulam has a wide variety of habitats, both natural and man-made. The natural habitat includes evergreen and moist-deciduous forests, grasslands etc. Teak plantations are the important man-made habitat in the area. Eucalyptus and other plantations are also met with in certain places.

At the foot of hills with vast grasslands, we met with extensive areas of swamp which are the feeding areas for animals such as the gaur and Indian wild boar.

The moist areas hold evergreen forests and the much drier hilltops are covered with grassland. The important and common evergreen species are:

*Cullenia excelsa*, *Myristica fragrans*, *Hydnocarpus wightiana*, *Aporosa lindleyana*, *Cinnamomum iners*, *Herpullia arborea*, *Diospyros assimilis*, *Diospyros malabaricum*, *Adenosoma* sp., *Baccaurea courtallensis*, *Machilus macrantha*, *Vatica indica*, *Mesua ferrea* etc.

In the moist deciduous areas:

*Adina cordifolia*, *Careya arborea*, *Grewia tiliifolia*, *Pterocarpus marsupium*, *Dalbergia latifolia*, *Clerodendron infortunatum*, *Glycosmis pentaphylla*, *Helicteres isora*, *Lantana camara*, *Randia dumetorum* etc. are common. *Bambusa arundinacea* and Eeta bamboo are common along the sides of the streams.

During the survey, seven birds were seen in Parambikulam. Two of them were sighted at a place called Varayatumudi about 4 km from the Thunukadavu dam and on the way to Parambikulam dam. Vijayan (op. cit.) has also reported the presence of frogmouth from the same area during his Parambikulam survey. These birds were seen in the bamboo forest during day-time. When I threw stones into bamboo clumps to flush the birds, one bird suddenly shot out from a bamboo thicket and sat on a nearby cane plant. It gave a call 'Coroo' and immediately another bird flew out more or less from the same area and perched on a nearby tree. They sat quietly and I was able to see them for about 3 to 5 minutes. They then flew off into the thick undergrowth of the cane forest which prevented me from searching further for the birds. On the opposite side of Parambikulam dam, towards the eastern slope of the highest hill

range 'Karimala Gopuram' three more Frogmouth were located. This area is less disturbed due to the inaccessibility of the terrain. This is one of the best Elephant areas of Parambikulam Wildlife sanctuary. I only had a glimpse of these birds, but in different areas on different days. I am therefore not certain whether they were separate birds. On the way to Karimala Gopuram from Sholayar two more birds were seen on the same day in evergreen biotope. Karimala Gopuram, the highest peak on the western ridge of Parambikulam has an elevation of 1440 m. The hill top is grass-covered and is Nilgiri Tahr country. One day's stay at the top of this hill helped me to locate 8 Tahr in this area.

#### Sholayar Vazachal area :

Sholayar is contiguous with Parambikulam on the west. Sholayar range has an area of 15,513.60 hectares as per the forest records, and out of this about 1,820.73 hectares have been leased out for Sholayar dam and for tea estates. The other portions are thick evergreen type of forest. It is very unfortunate that the forest department has started selection felling of trees in this area. Three birds were seen on the way from Karimala Gopuram to Sholayar dam in thick evergreen forest. This beautiful strip of virgin forest is now disturbed by selection felling of trees and a motorable road has been laid from Sholayar to the foothills of Karimala Gopuram and lorries are plying up and down the road carrying timber. Birds in this area were located in cane and eeta bamboo areas. One bird was seen in the small strip of bamboo forest at a place called Orukombankutty in-between the Orukomban river and the old tramway going to Parambikulam. In-between Vazhachal and Porungal dam in the eeta forest along the riverside one more bird was located.

*Barrachostomus moniliger* seen in Sholayar-Parambikulam areas:

1) Parambikulam area	..	7
2) Sholayar area	..	3
3) Orukombankutty	..	1
4) Vazachal area	..	1
	..	—
	..	12
	..	—

### 3) Thattakadu :

Thattakadu, situated at the foothills of Munnar is on the bank of Periyar river close to Narayamangalam. The old Munnar road ran through this forest area. This is one of the best areas for birds. The forest is semi-evergreen, but large scale plantations are also met with. The area is famous for eeta bamboo and cane forests. When Dr. Sálím Ali conducted the bird survey of Kerala, this area was one of the best virgin forest areas in Kerala and he had seen the Frogmouth here. The conditions have now completely changed and we could hardly see any untampered forest in the area. The catchment area of Periyar valley irrigation project extends up to the eastern side of Thattakadu. This provides water for agricultural activities, and which has induced people to invade and encroach the area for cultivation. This has changed the face of Thattakadu. Except for a few plantation and forest areas, this can be now considered as a village with coconut and banana plantations.

A two-week survey was conducted in this area for Frogmouth, but I could not locate any. Even a suitable habitat for the bird was not to be seen. However, this is still one of the best areas for other birds. The animal population also is very poor.

### 4) Periyar-Sabarimala areas :

Periyar wildlife sanctuary, situated at 9° 15' and 9° 40' north latitude and 76°55' and 77°25' east longitude, has varying altitudes from 900 m to 1800 m. The average annual

rainfall is 2030 mm. The topography of the land is uneven and is covered by forest and grassland. The rugged terrain, virgin forest, deep lake and rushing brooks are favourite haunts for wild animals and birds. The area has a very pleasant climate. Maximum temperature is 30°C and minimum 15.5°C. Within the forest area, there is a conspicuous and extensive tableland at an altitude of 1400 m which is covered by grassland and is an ideal place for *Eurostopodus macrotis bourdilloni*. Vellimali is the highest peak in the area having an elevation of 2019 m. The Periyar, the longest river in Kerala, takes its origin from Sivagiri hills of Periyar sanctuary. The Sabarimala-Pamba forests are adjacent to Thekkady forest. This is one of the undisturbed areas of the Western Ghats. The famous pilgrim centre of the God Ayappa is at Sabarimala, and the present day expansion of Sabarimala temple is causing considerable damage to the adjoining forest areas. This forest is continuous upto Neyyar or even further towards Trivandrum side. Inaccessibility, was the main protective barrier of this area. After the construction of Pamba Hydro Electric Project, roads have been run through this forest, and as a result more and more damage is occurring to this forest. The forest in this area is typically Evergreen interspersed with grasslands. Semi-evergreen type also is met with in certain places. Important and common flora here are *Artocarpus hirsuta*, *Acacia intsia*, *Ailanthus malabarica*, *Asparagus racemosus*, *Bambusa arundinacea*, *Bombax ceiba*, *Butea frondosa*, *Calamus rheedii*, *Calamus rotang*, *Calamus travancoricus*, *Cassia fistula*, *Cedrela toona*, *Cycas circinalis*, *Dalbergia latifolia*, *Eleocarpus ferrugineus*, *Emblica officinalis*, *Ficus* sp.; *Ochlandra travancorica*, *Rhododendron arboreum*, *Solanum* sp., *Strobilanthes* sp; *Xylia xylocarpa*, etc. The maximum number of Frogmouth seen during the survey were

observed in the Sabarimalai areas. 16 birds were located around Sabarimala and Pamba. Only one bird was seen in Periyar Wildlife sanctuary. This was located while walking to Mangaladevi hills from Kumuli along the side of a seldom-used forest road. I saw this bird sitting on a bare branch, and was the only one which I saw in a place where there was enough light for taking a photograph. Unfortunately, I did not have my camera with me at that time!

7 birds were located in Sabarimalai area between Uppupara and Pamba river. Out of this 3 were seen in the eeta bamboo forest on the western side of the temple. Two were observed among *Strobilanthus* plants, by the side of the pipeline road on the eastern side of the temple. One was seen among the forest area on the eastern side of Saramkutti among eeta. Another bird was seen in the forest area on the way to Pamba at a place called Appachikuzhi.

9 of them were seen on the other side of Pamba river, out of which 4 were seen in a narrow strip of forest near a place called Thriyani in Pamba. This area is not very far from human habitations in Pamba. 5 of them were seen in the forest area between Pamba Plapalli and Chalakkayam. The forest in these areas are very thick at a little distance from the main road. The main undergrowth is *Strobilanthes* sp.

All the birds located were seen during the day. One bird in Sabarmalai was seen during rain. Vijayan was also with me when I saw this particular bird, and it was only after three flights that we could locate the bird. In this case we went as close as 5 m of the bird, and it did not move even then. But when we moved closer, the bird turned its head towards one side, opened its eyes and flew away.

*Batrachostomus moniliger* seen in Periyar—Sabarimalai area:

1) Periyar Wildlife Sanctuary	..	1
2) Sabarimalai area	..	7
3) Pamba area	..	9
		—
		17
		—

#### HABITAT OF THE CEYLON FROGMOUTH

According to available literature, the Frogmouth is a rare resident of evergreen biotopes of the Western Ghats. Sálím Ali notes them as nocturnal, shy and seldom seen, apparently not very vocal, hence possibly less rare than it appears. He came across it only once at Thatakkadu during his survey of the birds of Kerala. The habitat in which he saw the bird was dense secondary jungle with cane brakes. Vijayan saw a specimen flying from the bamboo forest during his survey of the Parambikulam Sanctuary.

The 34 birds located during the 6-month long survey were seen in different habitats. Bamboo and eeta forest along with *Solanum* and *Strobilanthes* undergrowth nearby, can be said to be the best habitat for the Ceylon Frogmouth. A forest disturbed either by man or by cattle is apparently unsuitable. An example is the Thattakad area, which was once a frogmouth area and now has none. Bamboo and eeta extinction also affects its population density. Big bamboo, especially the dead ones, provide them an ideal habitat. This also provides ample space for them to hunt their insect food. Plantations of various kinds are unsuitable. During the survey in Parambikulam, old teak plantations were also searched for frogmouth. Even though its natural habitats are developed in the plantations, I did not see any there. Highly suitable habitats for frogmouth were seen in places such as Silent Valley and Sabarimalai areas. In Parambikulam-Sholayar areas its natural habitat is much

thinned out, hence they are concentrated in places where the natural habitat exists.

#### HABITS OF FROGMOUTH

Being a shy and nocturnal bird, it is very difficult to study frogmouth during daytime. Nothing very important was noticed on the habits of the bird during the survey. It is very sluggish by nature, hence is easily approachable when at rest during daytime. During the survey I was able to get as close as 2 metres and even then the bird sat quietly on the branch. They were seen to rest with closed eyes and neck slightly pulled downwards. Sálím Ali describes it as perching with its bill pointing skywards; the birds I saw kept the bill somewhat parallel to the ground while resting. They were not seen coming to the ground at all. When disturbed, they often turn the head to either side and then bob the head twice or thrice before flying away. When they do this they were seen ruffling their neck feathers and also sometimes, the tuft of feathers above the eyes would project upwards. I think this happens when they are disturbed, because at rest the feathers lie sleekly against the body.

#### *Field Characters:*

The bird is about the size of a Myna, cryptically coloured with vermiculations of grey and brown streaked with black and white. They merge perfectly with dry bamboo poles or lichen-covered tree trunks where they spend most of their time. The female is slightly larger than the male, and more dull in colour. The white band around it's neck seems extended up to the hind neck forming a ring. (This is not visible when seen from a distance. Unless a bird is in hand one cannot note this correctly, and during the survey I did not have an opportunity). The tuft of feathers above

the eyes are visible from a long distance. We (Vijayan and I) noted the iris as golden when the eyes were open. This was seen on the bird at Sabarimalai.

Calls, food, feeding and breeding activities were not studied during the survey. Before the survey while staying one night, at the Electricity Board rest-house at Sholayar with Dr. Paul Slud, Associate Curator, Division of birds at the National Museum of Natural History, Smithsonian Institution, in March we heard a call "Coroo, Coroo, Coroo" for a long time which Vijayan identified as the call of frogmouth. This was heard from a bamboo forest area on a moonlit night. During the survey, I also located one frogmouth from the same area.

#### CONCLUSION

During the six-month survey of the population of frogmouth, thirtyfour birds were seen in their natural habitat, the Evergreen forests of the Western Ghats in Kerala State. As Sálím Ali has stated in his survey report of birds of Kerala, 'it is possibly less rare than it appears'. The present survey report shows that even though they are not very common, they are not endangered. For the uninitiated, it is a very difficult bird to locate. As the time for survey was limited, I could not study much about its various activities. It is a cause for concern that it's natural habitat is being reduced day by day, and hence possibly the population of the birds also. The proposed Silent Valley project, if it takes place, will affect the frogmouths along with so many other birds and animals which are also facing the loss of their habitat. Its population in areas of the Western Ghats other than Kerala state and in Sri Lanka also, has to be studied without delay. The best place to conduct a study on the frogmouth is the Sabari-

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malai area. This area also is now subjected to high human disturbances for the development of the famous Sabarimalai temple and its surroundings.

*Other interesting birds observed during the Survey:*

BOURDILLON'S GREAT EARED NIGHTJAR  
(*Eurostopodus macrotis bourdilloni*):

Near Sholayar dam, on a full-moon night, I heard the continuous calls of Bourdillon's Great Eared Nightjar. It was very loud and I could hear it from the rest house, about a kilometre away from the place of the calls. It sounded somewhat like 'Vie-View, 'Vie-View' of a truck horn. I netted this bird after a few weeks, along with two Indian jungle Nightjar from the same area.

BROADBILLED ROLLER (*Eurystomus orientalis laetior*):

Four were seen during the survey. We saw one in Parambikulam Sanctuary on a tall dry tree by the side of a river. Another was seen in Thattakadu. Two were seen in Sabarimalai calling from a tree. It was raining at that time. The bird came close to the bungalow, where we

were sitting and watching, and sat for a very long time on the electric wire in front of our bungalow cocking its short tail up and down. When it became dark it flew away. A pair was seen there and we suspected that they were breeding.

GREAT INDIAN HORNBILL (*Buceros bicornis*):

This was one of the commonest birds in places where I searched for the frogmouth, except at Thattakadu. In Thekkady, I once had the opportunity of seeing a flock of about 27 Great Indian Hornbills moving from one tree to another crossing the lake. I think it was a most uncommon sight indeed to see these birds in such a big group.

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SPECIES MAINLY ENDANGERED SEEN DURING THE SURVEY

Species	seen	heard	Place
<i>Presbytis johni</i> (Nilgiri langur)	196	11	Silent Valley
	112	4	Parambikulam
	223	19	Periyar-Sabarimalai
<i>Macaca silenus</i> (Lion-tailed Macaque)	96	4	Silent Valley
	19	2	Parambikulam
	37	8	Periyar-Sabarimalai
<i>Panthera tigris</i> (Tiger)	1	..	Silent Valley
	..	..	Parambikulam
	..	..	Periyar-Sabarimalai
<i>Panthera pardus</i> (Panther)	1 (Black)	..	Silent Valley
	..	1	Parambikulam (Sholayar)
	..	..	Periyar-Sabarimalai
<i>Cuon alpinus</i> (Wild dog)	..	..	Silent Valley
	7	..	Parambikulam
	5	..	Periyar-Sabarimalai
<i>Melursus ursinus</i> (Sloth Bear)	..	..	Silent Valley
	2	..	Parambikulam
	1	..	Periyar-Sabarimalai
<i>Elephas maximus</i> (Indian Elephant)	56	..	Silent Valley
	31	..	Parambikulam
	67	..	Periyar-Sabarimalai
<i>Bos gaurus</i> (Gaur)	3	..	Silent Valley
	27	..	Parambikulam
	7	..	Periyar-Sabarimalai
<i>Hemitragus hylocrius</i> (Nilgiri tahr)	16	..	Silent Valley
	30	..	Parambikulam
	..	..	Periyar-Sabarimalai

Animals such as *Macaca radiata*, *Herpestes edwardsi*, Otter (*Lutra* sp.), *Funambulus* sp., *Hystrix indica*, *Cervus unicolor*, *Axis axis*, *Muntiacus muntjak*, *Tragulus meminna*, *Sus scrofa*, etc. were also seen during the survey.

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